August 10, 2012

Oregon Department of Environmental Quality
2020 SW 4th Avenue
Portland, OR 97201-4987

Attention: Dave Lacey

Subject: Response to EPA Comments Provided in a Letter Dated February 10, 2012
Rhône-Poulenc - Portland Site
Portland, Oregon

Dear Dave:

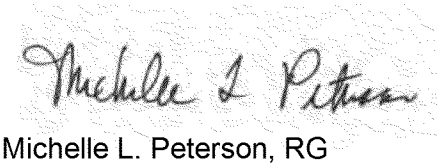
Attached please find preliminary responses to United States Environmental Protection Agency (EPA) comments provided by you to StarLink Logistics, Inc. (StarLink) in an email to Joan Underwood dated February 13, 2012. The EPA comments were contained in a letter to you from Rich Muza of EPA dated February 10, 2012, and titled EPA Review of Draft Remedial Investigation / Source Control Evaluation (RI-SCE) Report for the Rhône-Poulenc – Portland Site (November 19, 2010).

Please note that the attached responses are not comprehensive, and that StarLink does not agree with a number of specific EPA comments that are not addressed in these preliminary responses.

If you have any questions, please call Joan Underwood at (503) 278-1837.

Sincerely,

AMEC Environment & Infrastructure, Inc.



Michelle L. Peterson, RG
Associate Geologist

REVIEWED BY:

Sean F. Gormley, EAC, CHMM
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Attachments: Attachment A Table of Responses

SFG/lp

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ATTACHMENT A

Table of Responses

Comment Category	EPA Comment Number (s)	EPA Comment	StarLink Response
Hazardous Substance Releases	5	This section is void of any discussion and information related to RP property releases and only refers to documents that describe the releases and possible source areas at the RP site. In contrast, releases at vicinity properties are presented in depth. At a minimum, RP should include a summary of the findings in the referenced documents to provide essential background information related to hazardous substance releases at its own site. This information is fundamental to the conceptual site model and provides a reference point for the constituents of concern presented throughout the document and how they related to RP site releases.	The Remedial Investigation/Source Control Evaluation (RI/SCE) Report states that releases occurred in the Insecticide Area (IA), Herbicide Area (HA), and Lake Area Drainage Ditch (LADD) areas. Multiple figures in the document (Appendices F, H, and K) show the distribution of representative constituents in these areas and are the best information for understanding the source of constituents released at the property, given the nature of co-mingled, multiple releases in these areas. The list of representative constituents used to illustrate distribution in the RI/SCE Report was approved by Oregon Department of Environmental Quality (DEQ) and United States Environmental Protection Agency (EPA) in a letter dated June 3, 2010. More detailed information on historical releases is provided in multiple previous documents, including the Remedial Investigation Work Plan (prepared by Ecology and Environment, Inc., for DEQ, dated April 1999) and the Final Source Area Soils Characterization Report (prepared by AMEC Earth & Environmental, Inc. [AMEC] and submitted to DEQ March 3, 2003). The Rhône-Poulenc Site is one source in a multi-property, multi-responsible party area that falls within the Rhône-Poulenc Locality of Facility (LOF). Many of the properties in the LOF have not been required to investigate or address contamination related to the operations on the sites by DEQ, or have been required to perform only limited and inadequate investigations. Therefore, the descriptions of other parties provided in Section 3.0 (Hazardous Substance Releases is one of the only places where other sources are recognized or considered for impacts within the Rhône-Poulenc LOF. Without recognizing other sources, the nature, extent, fate, and transport of Rhône-Poulenc constituents cannot be adequately understood. DEQ also required that StarLink provide detailed discussion of all detected constituents in the RI/SCE Report regardless of source. This requirement made it essential to provide information related to the multiple known or likely sources in the vicinity of the former Rhône-Poulenc facility due to the inadequate or nonexistent information on those sites in the public record. StarLink provided additional information to DEQ on December 7, 2011 that summarizes the contaminant releases.
Interim Remedial Action Measures (IRAMs)	8, 9	No. 8 - The interim remedial action measures (IRAMs) presented in Section 5.0 should provide summaries of the performance monitoring results and findings in IRAM documents referenced in the report. This will enhance the presentation of these IRAMs with data and multiple lines of evidence to support the conclusions made in the RI/SCE report that source control resulting from the IRAM is effective. This information is fundamental to the Conceptual Site Model. Without this information the effectiveness of the IRAM cannot be confirmed.	Additional information on IRAMs was submitted to DEQ on December 7, 2011 and included a list of measures that were implemented, the targeted environmental medium, a summary of the action, as well as status and effectiveness. IRAM effectiveness will also be evaluated during the feasibility study (FS) to determine how the IRAMs may be included in the final site remedy.
IRAMs	10, 19, 23	No. 10 - Page 42, Section 5.3.1, First Paragraph: RP should provide the data and elaborate on the evidence that supports the following statement “No evidence of preferred groundwater transport along Outfall 22B backfill material had been observed”.	The statement questioned is supported with information provided in the Draft RI/SCE Report (Section 5.3.1; Appendices F and H), the City of Portland (City) as-built plans for the Outfall 22B storm sewer (“NW Front Ave., Parts III, IV, and V Storm Sewer System”, Sheets 4, 5, and 6; October 1, 1978, completed July 9, 1980), the Final Outfall 22B IRAM Work Plan (November 11, 2005), and the Outfall 22B IRAM Technical Memorandum (May 1, 2008): 1. DEQ requested that this migration pathway be investigated prior to finalizing the Outfall 22B IRAM scope of work in 2005. To avoid costly and likely inconclusive investigation of the potential for flow within the backfill, a cutoff collar was installed through injection of polyurethane in the pipe backfill material downstream of MH-3 during 2006; polyurethane was also injected at several locations along the storm sewer pipe, effectively creating additional cutoff collars. 2. No flow from around the outside of the pipe was observed during several years of work at the site of Outfall 22B. 3. The lower (below pump station) leg of the main line is completed in pre-existing dredge material consisting primarily of sand (some coarse), according to City plans and observations during excavation by ITI in 2009. The upper (above pump station) leg of the main line is completed in a mixture of brown sand, silt, and rubble, according to the City plans, suggesting variability and courser material Based on this information, it is unlikely the storm sewer bedding material would be significantly more permeable than the existing material into which the pipe was installed. 4. Monitoring wells completed within and near the N.W. Front Avenue utility corridor (e.g., PM-01-18 and PM-05-24) encountered sand with silt or sandy silt, and did not encounter an engineered gravel backfill. 5. Groundwater data from monitoring wells do not suggest preferential migration of constituents in groundwater parallel to the storm sewer.
IRAMs	11	Page 42, Section 5.3.1.3, Last Paragraph: RP should show where the polymer was injected along the Outfall 22B storm sewer in a figure.	Figure 2 of the Outfall 22B IRAM Technical Memorandum (May 1, 2008), shows repair locations and infiltration points where polyurethane was injected.
IRAMs	12	Page 43, Section 5.3.1.3, First Paragraph: RP should provide evidence with supporting monitoring data to support the statement that groundwater flow around the pipe was cut off with the injection of polyurethane foam around the pipe.	There is no historical evidence that preferential flow occurred around the pipe prior to or after injection of the polyurethane foam. This will be discussed in the Outfall 22B Expanded IRAM Completion Report, to be submitted once the final stages of the project are completed. No flow from around the outside of the pipe was observed during several years of work at the site
IRAMs	13	Page 43, Section 5.3.1.3, Fifth Paragraph: Samples collected on October 29 and December 11, 2007 may be too late in the year to be considered non-stormwater samples. This period is typically during the wet season and likely has significant stormwater influence. Rainfall records should be presented with this sample data to document whether they represent groundwater infiltration or stormwater.	The requested evaluation was conducted and reported in the Outfall 22B IRAM Technical Memorandum dated May 1, 2008, and previously provided to EPA. This report was referenced in the RI/SCE Report.

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IRAMs	14	Page 44, Section 5.3.2, First Paragraph: The discussion of this IRAM relates to a work plan. It is unclear when the IRAM was actually implemented and if subsequent and sufficient monitoring was performed to fully evaluate and support RP's statement that "the Outfall 22B expanded IRAM has substantially reduced non-stormwater flow as of November 2010." To clarify this information, RP should provide a timeline of Outfall 22B IRAM implementation and present the results of monitoring data that supports conclusions related to the non-stormwater flow reduction to City Outfall 22B.	The expanded IRAM was implemented in 2009 and substantially completed in 2010. Some additional work will be completed in 2012. A completion report will be submitted to DEQ in late 2012. Monitoring and reporting will begin once the IRAM is completed.
Hydrogeologic Conceptual Site Model	15	The hydraulic conductivities for the hydrostratigraphic layers in the Conceptual Site Model (CSM) appear to be a whole order of magnitude lower than expected for the sediments present in the artificial fill, fine-grained alluvium, and alluvial-colluvial gravel. For instance, the report states the geometric mean for the alluvial-colluvial gravel as 14.1 ft/day, yet published values for similar sandy, gravelly sediment averages 165 ft/day (Documentation of Spreadsheets for the Analysis of Aquifer Test and Slug-test Data, USGS, 2002). Presenting an order of magnitude lower hydraulic conductivity values will result in travel times slower than actual and greater than actual attenuation.	The use of published values in place of site-specific values is not appropriate when site-specific values are available because published values are unlikely to accurately reflect site-specific conditions. EPA also fails to recognize that the Alluvial-Colluvial Gravel is a mudflow deposit composed of basalt gravels in a fine-grained matrix made primarily of loessal silts, which is a significantly different deposit than a sandy, gravelly sediment. The reference cited by EPA provides values of 6 and 20 feet per day respectively for silt/loess and fine sand (Table 1, extreme maximums) that are more representative of the matrix material of the Alluvial-Colluvial Gravel. Accordingly, the values for these materials are consistent with the geometric mean reported in the RI/SCE Report for the Alluvial-Colluvial Gravel. EPA's example of published values versus site-specific values highlights the importance of understanding site geology and how inappropriate application of a published value could lead to an incorrect understanding of the subsurface. Site-specific values must be applied to fully understand the CSM and how constituents move in groundwater at the Rhône-Poulenc property and vicinity.
Hydrogeologic Conceptual Site Model	16	Unfortunately, the report does not present the method(s) used to determine the hydraulic conductivities from the pumping/ slug tests. Due to the standardized monitoring well construction employed at the site, as presented in Appendix D-3a, there may be some issues with results derived from the pumping and slug test analyses that present a low bias to the hydraulic conductivities of the sediments. For example, standardized monitoring well construction (2-inch to 4-inch wells, with 10 to 20 slot screens with 10-20 sand pack) is not a carefully designed well screen customized to the grain size distribution encountered within the interval to be screened. This leads to poor well performance (inefficiency) that reduces capture and the ability to effectively evaluate the aquifer characteristics. If these efficiency issues are not factored into the aquifer test analysis, the results can present lower hydraulic conductivities than what actually exists. The report should present the analytical methodology used in the pumping/slug test analysis, the efficiency of the wells tested, and how this efficiency was addressed in the pumping/ slug test analysis.	The method used to determine hydraulic conductivity is provided in Tables D3a through D3e of Appendix D, which lists the test type for each calculated hydraulic conductivity value presented in the RI/SCE Report. These above referenced tables also direct the reader to the appropriate report(s) for details regarding evaluation methodologies. Multiple factors were considered when evaluating the hydraulic conductivity data including the construction of the well (screen length, slot size, and filter pack), adequacy of well development, slug test versus pumping test, and well yield during bailing or pumping. In addition, the monitoring and extraction wells have neither filled with fine matrix material, suggesting too large a slot size or filter pack, nor been pumped dry under low stress conditions, suggesting too small a slot size or filter pack. Frictional head loss across a screen that could potentially affect calculation of hydraulic conductivity varies with the square of the entrance velocity. For significant head losses to occur, the screen open area would need to be small, the formation hydraulic conductivity high and pumping sufficiently high to cause turbulent flow and high entrance velocities at the well screen. These conditions were not present in the wells tested because the well screen was continuously slotted with a significant open area, the formation is not a high yield formation, and pumping occurred at a low volume (less than 10 gallons per minute [gpm]). Many wells could not be bailed or pumped dry indicating that the well screen was able to transmit water at a significant volume. Butler, JJ, 1998, confirms that "most commercially available machine-slotted or continuously-wrapped screens will have a sufficiently large enough open area to minimize such effects." Well efficiency is a potential factor in the design of a pumping system, especially water wells, where long-term well yield is the primary design consideration.

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Hydrogeologic Conceptual Site Model	17, 35	No. 17 - The Alluvial/ Colluvial Gravel channel presented in the CSM appears to be much more extensive than presented in the report for the following reasons: a. The Troutdale formation appears to be mis-identified in well logs (Appendix D) on the Siltronic and Gasco properties. The report relies on quartzite gravels as evidence for the Troutdale formation, but many wells logs do not show this mineralogy where Troutdale has been assigned (see well logs RP-11-216, WS-11, WS-12, GS-05). In fact, the only well log that does indicate some presence of quartzite gravels is GS-07. b. There are well logs in Appendix B not used in the CSM (Appendix D) that indicate the Alluvial/ Colluvial Gravel extends much further northwest under Siltronic property than mapped in Figure 6-T (see Gravelly sediments matching alluvial/colluvial gravel lithology in well logs RP-23-125, RP-22-151, RP-21-150, and RP-20-110). c. Appendix D-3c shows monitoring well completion information and hydraulic conductivity information for wells in the Alluvial/Colluvial Gravel and presents information for RP-23-100, yet the report does not map the Alluvial/Colluvial gravel at this well in Figure 6-T. d. There is a fault identified in the undifferentiated Columbia River Basalt Group (CRBG) at the southeast end of the deep bedrock basin that could explain the large vertical separation of the Alluvial Colluvial gravel. Faulting within the CRBG, as described in Section 6.2.2.4, indicates vertical offset on the order of approximately 122 feet, which is similar to offset measured between the permeable gravels in the deep bedrock basin identified in the report as Troutdale formation and the shallower Alluvial Colluvial gravels. This larger extent of the Alluvial/Colluvial Gravel is significant since the report indicates that groundwater discharge to the Willamette River is primarily through this hydrostratigraphic unit (see Section 6.2.3.6). Limiting the extent of the Alluvial/Colluvial gravel will limit the potential extent and pathway of RP contaminants, which may be greater than shown and exist within deeper portions of the groundwater basin under the Siltronic and Gasco sites.	The Alluvial-Colluvial Gravel is well characterized and is not larger in extent as suggested by EPA. Characterization is based on multiple lines of evidence: a. Quartzite lithology is one line of evidence used to identify the Troutdale Formation and differentiate it from the Alluvial-Colluvial Gravel and weathered CRBG, The Troutdale Formation was also differentiated by the degree of rounding of the gravel, published mapping of the Troutdale Formation in the Portland Basin (Swanson, et.al, 1993, Plate 9), and discussions with Mr. Terry Tolan regarding the presence of the Troutdale Formation in the Rhône-Poulenc property and vicinity. Reliance on only the grain size descriptions and classification on the boring logs does not provide a complete understanding of the site geology. b. Figure 6-T includes all boring locations were the Alluvial-Colluvial Gravel has been identified including RP-23. Boring logs, archived soil cores, and soil core photographs were reviewed. The lithology listed as gravel on the boring logs for RP-21 and RP-22 is actually weathered CRBG. The boring log for RP-20-110 indicated a 2-inch layer of rounded to subrounded sandy gravel. Based on the very limited thickness, this location was not included on Figure 6-T. c. Figure 6-T does include monitoring well RP-23-100 on Siltronic property as having a screen completed in the Alluvial-Colluvial Gravel. d. The formation and faulting ages provides additional information that was used to differentiate the Troutdale Formation and Alluvial-Colluvial Gravel. CRBG were deposited between approximately 6 and 17 million years ago and faulting in the CRBG near the Rhône-Poulenc property and vicinity is likely associated with the development of the Tualatin Mountains. This activity is much older than the Alluvial-Colluvial Gravel, a recent mudflow deposit containing loess and colluvium from the Tualatin Mountains. The Alluvial-Colluvial Gravel is younger than the Troutdale Formation and was deposited during the Missoula flood event. The Troutdale Formation was buried by fine-grained alluvium that was deposited by the River as sea level rose. The Alluvial-Colluvial Gravel and the Troutdale Formation are two distinct units that do not consist of a single preferential pathway to the Willamette River (River) within the Rhône-Poulenc property and vicinity. The Troutdale Formation is laterally and vertically discontinuous from the Alluvial-Colluvial Gravel, with a separation of approximately 175 feet laterally and approximately 80 to 100 feet vertically. The Troutdale Formation also is vertically separated from the bottom of the River by more than 100 feet of Fine-Grained Alluvium, whereas the Alluvial-Colluvial Gravel is located at or near the same elevation as the bottom of the River. The Troutdale Formation does not act as a discharge zone for Rhône-Poulenc related constituents of interest (COIs) to the River because the concentrations of Rhône-Poulenc related COIs are at or near the JSCS SLVs at depth and would be expected to attenuate to levels below the Joint Source Control Strategy screening level values (JSCS SLVs) over the 100 feet of vertical elevation change required to reach the river bottom. This expectation is confirmed by the analytical results for monitoring wells completed in the Fine-Grained Alluvium above the Troutdale Formation where detections of Rhône-Poulenc related COIs are minimal and none exceed the JSCS SLVs. As discussed in Section 16.5, wells screened in the Fine-Grained Alluvium overlying the coarser material indicate minimal upward movement of Rhône-Poulenc-related COIs from the Troutdale Formation into the overlying Fine-Grained Alluvium (e.g., Silvex was not detected and 1,2-dichlorobenzene was detected orders of magnitude below JSCS SLVs in wells WS-11-125, WS-11-161, WS-12-125, WS-12-161, WS-14-125, and WS-14-161).
Hydrogeologic Conceptual Site Model	18	The report should not characterize the larger alluvial deposit between the Artificial Fill and Alluvial/Colluvial Gravel as "Fine-Grained" as there are extensive areas of permeable sand layers within this unit. Ignoring the higher permeable, coarser-grained fractions within the alluvium will underestimate travel times and overestimate attenuation potential.	No laterally continuous preferential pathways were observed within the Fine-Grained Alluvium in the significant number of borehole samples available for the Rhône-Poulenc property and vicinity. The Fine-Grained Alluvium classifies as silt (ML; 73% of samples) and silty sand (SM; 24% of samples), with only three samples (0.5%) classified as sand (SP). Field classifications on some boring logs identify the Fine-Grained Alluvium as sandy material using the Unified Soil Classification System (USCS). Grain-size analyses completed on materials field-classified as being sandy indicate these soils generally should be classified as silts. Exceptions to this include a tendency toward sandier material near the base of the unit closer to the River, and in the buried bedrock basin beneath Gasco property where the predominant grain size is sand (classified as SP on logs completed by others on Gasco property). Ninety-seven percent of the grain samples collected (58 samples from 17 different locations) were classified as fine-grained or having a significant fine-grained component after laboratory testing was completed. These data support characterization of the alluvial material as fine-grained.
Hydrogeologic Conceptual Site Model	81	Page 686, Section 17.1.3, First Paragraph: The list of factors influencing hydraulic characteristics should also include the placement of fill material within Doane Lake and along the Willamette River.	Comment noted.
Potential Transport Pathways	20	Page 74, Section 7.2.4.1, Third Paragraph: RP states that flow in the HDD or discharge to the River (via the HDD), has [not] been observed, even during a heavy rainfall period on October 26, 2010 that received 0.13 inches of precipitation. This is not considered a substantial storm for this area, considering the 30-year average (1971-2000) for October 26 is 0.12 inches (NWS, Portland Data). RP should provide field observation data for evaluating surface flow in the HDD when rainfall totals greatly exceed the 30 year normal precipitation for the site at that time period.	StarLink is collecting and will report on additional observations of the HDD discharge point as agreed to with DEQ. Observations between March and June 2012 demonstrate the HDD may have limited flow only during extreme rain events, and that discharge does not occur during typical periods of rainfall. In addition, the HDD is heavily vegetated, and the limited stormwater observed during an extreme rain event was low in turbidity, showing that soil is not eroded and entrained.

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Potential Transport Pathways	21	Page 76, Section 7.2.5.1, Fifth Paragraph: Figure 7-B shows only basin areas for the RP site. RP should provide a more detailed map showing the routing and direction of stormwater runoff in the RP NPA area. This is important since the WDL IRAM has likely changed the stormwater routing within the NPA basin. Also, it is unclear at the current map scale and detail shown in Figure 7-B what prevents stormwater within the NPA from flowing Northeast onto the ESCO property.	The West Doane Lake (WDL) Construction Completion Report was submitted to DEQ on June 18, 2012. The WDL remedy does not significantly change the overall stormwater flow in the Northwest Property Area (NPA). Rainfall in the NPA ponds and infiltrates. Minor changes to this from the WDL IRAM are: 1) rainfall on the WDL cap is captured and the clean water is currently routed to the on-site water treatment plant (WTP), and 2) stormwater flowing onto the NPA from BNSF Railway Company (BNSF) and Highway 30 is collected and pumped to the on-site WTP for treatment and discharge under the Site National Pollution Discharge Elimination System (NPDES) permit. Project grading for the WDL IRAM maintains conditions that prevent off-site runoff. In addition, ESCO Corporation (ESCO) grade elevation is generally higher than the NPA, and to the extent that stormwater flows on the ESCO property, it flows toward the NPA.
Potential Transport Pathways	22	Page 77, Section 7.2.5.2, First Paragraph: RP should provide supporting evidence (e.g. observation monitoring summary) for their conclusion that there is no overland stormwater pathway from the RP property to any offsite receptor and that sheet flow does not leave the RP property.	StarLink is collecting and will report additional observations of stormwater flow.
Potential Transport Pathways	33	Figure 7-C shows a plugged and abandoned manhole within the wastewater treatment plant area. This location is immediately adjacent to the Lake Area Drainage Ditch (LADD) and next to a former stormwater collection sump. Using the non-aqueous phase liquid (NAPL) extent located on Figure 2-A, this former manhole location appears to be a central location of the mapped NAPL extent and next to the wells and borings where the deepest extent of NAPL has been found to-date. This evidence suggests that the manhole has played some role in the pathway of constituents entering the groundwater related to past site use (NAPL in particular). The RI/SCE document should provide a history of this manhole, including its construction, dimensions, and connectedness to the subsurface as well as when and how the manhole was plugged and capped.	Starlink has located no information regarding this manhole, but it is located in an area described in the RI/SCE Report as a source area related to multiple releases at the former Rhône-Poulenc facility. Given the existing data on contaminant presence and distribution in this area, additional research concerning this single possible pathway is unnecessary.
Potential Transport Pathways	44	Page 516, Section 15.1.3, Paragraphs 1-2: The section states that the NPDES pathway is incomplete and that Table 1 of the DEQ Joint Source Control Strategy (JSCS) Milestone Report should be revised accordingly. The basis for this conclusion is that the terms of the permit are being met. However, sufficient supporting data is not provided to demonstrate that the JSCS criteria are being met for all COPCs at the RP Site. The SCE evaluation should provide sufficient information to confirm that the terms of the permit are adequate and that no additional monitoring parameters or permit limits are necessary.	Discharge under this permit is in compliance with applicable Federal Clean Water Act and Oregon water pollution control laws and is not causing pollution; therefore, it is exempted under Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA) Section 107 (i) and Oregon Revised Statute (ORS) 465.405(2). A complete evaluation of the discharge has been performed as part of the reasonable potential analysis required for permit renewal under Federal and Oregon oversight, is publically available at DEQ, and has been evaluated by DEQ Water Quality staff. Additional evaluation of discharge data is not applicable.
Potential Transport Pathways	78	Page 685, Section 17.1.3, Second Bullet: The second bullet should be revised to note that RP also contributed material to the filling of Doane Lake.	This bullet will be revised to to include contributors listed in bullet number 3 of Section 2.2 which lists property owners ESCO, NL/Gould, Schnitzer Investment Corporation (Schnitzer), Air Liquide, LLC (Air Liquide), BNSF, and Rhône-Poulenc. Arkema, the Port of Portland, and the United States Army Corp of Engineers (USACE) also will be listed for contributions of dredged materials to former Doane Lake. The City also will be listed for contributions associated with the Guilds Lake Pump Station. Available information indicates that Rhône-Poulenc contributed clean fill from a variety of local sources during filling of the former Doane Lake. Rhône-Poulenc also placed a limited volume of crushed, empty drums and construction debris, along with an even more limited number of full or partly full containers of filter aid and other waste materials in certain parts of the southern side of what is now the NPA. The placement of these materials occurred at the point in time where most of the former Doane Lake had already been filled, and the nature and extent of these materials has been presented in the Expanded Lake Area Geophysical Report, as well as several other documents related to the removal of the materials.

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NEFT	27	Pages 149-151, Section 8.4.2.2: There are indications throughout this section that various natural attenuation mechanisms are occurring but the presentation of evidence is often unclear. Below is an example of this with regard to the discussion of trichloroethene (TCE) degradation occurring at the site: a Page 150, Section 8.4.2.2, Bullet 3: The bullet states that "Vinyl chloride is detected over a greater area than either trichloroethene or cis 1,2dichloroethene because vinyl chloride is not biodegradable under anaerobic conditions. Vinyl chloride does not reach the River in the Artificial Fill. Vinyl chloride exceeds its Screening Level Value (SLV) at the River in the Fine-Grained Alluvium (but only at two locations; RP-13-22 and PR-02-49), the Alluvial-Colluvial Gravel, and the CRBG. The overall distribution of vinyl chloride in groundwater is consistent with distribution of chlorinated benzenes, which also are more persistent in the environment". b Page 150, Section 8.4.2.2, First Paragraph: The paragraph states that "Complete degradation of trichloroethene is evident on the ESCO Site where trichloroethene breakdown product concentrations are generally below published screening values, or are not detected at all. Biodegradation of trichloroethene continues to occur from on-going natural processes". c The initial paragraph citing the complete breakdown of TCE is not consistent with Bullet 3. Bullet 3 states that vinyl chloride exceeds screening levels. Yet vinyl chloride is a compound in the TCE breakdown series. Additionally it is stated that complete degradation of TCE is evident but goes on to say biodegradation of TCE continues to occur. These sections need to be clarified.	Additional evaluation of natural attenuation processes and distribution of breakdown compounds will be provided as necessary either in the supplement to Section 8.0 of the RI/SCE or in the feasibility study. EPA's comments related to TCE and vinyl chloride illustrate the nature of the problems with the lack of data about releases on neighboring sites. Apparent anomalies in the distribution of a number of constituents in samples collected at a distance from the former Rhône-Poulenc facility are most likely related to the presence of sources on these neighboring properties and not related to former Rhône-Poulenc operations. Most of these properties have documented or likely releases and have inadequate or no investigations by the parties responsible for the releases. The attempt by DEQ and EPA to evaluate nature and extent of constituents in groundwater at the former Rhône-Poulenc property and vicinity properties as if it resulted only from releases by Rhône-Poulenc results in the perception of apparent inconsistencies and anomalies. These inconsistencies and anomalies would largely be resolved by adequate investigation of releases by responsible parties on these neighboring properties.
NEFT	28	Page 428, Section 8.12.1.1, Third Paragraph: This paragraph states that total arsenic was detected above established background concentrations in 366 of 509 (72 %) of the samples analyzed. In subsequent Section 8.12.6.1 (Page 482, Arsenic), the report indicates a conclusion of immobility of arsenic at the site. The section has a very detailed discussion of how the mobility of arsenic is reliant on pH, redox, and other geophysical factors such as total organic carbon (TOC). It also goes on to suggest that the lack of sulfide indicates that the arsenic that may be present at the site with the sulfate and is therefore not mobile. There was 152ug/L of dissolved arsenic in MW-05-24 sampled on 5/29/2009 that has a corresponding hit of 155ug/L for total arsenic. This suggests the majority of the arsenic at this location is mobile since it is in the dissolved groundwater sample. Arsenic was also detected at well AL5-19 during this same sampling round at 83ug/L dissolved and 98ug/L total. These 2 sections seem to contradict the potential fate and transport of arsenic at the site. The language between these 2 sections needs to be rectified.	Additional information on arsenic geochemistry at the former Rhône-Poulenc Site would be included in the FS if needed. That said, the presence of high concentrations of dissolved arsenic in source areas where redox conditions are favorable to dissolution of naturally-occurring arsenic compounds is not surprising. In addition, and as pointed out in the RI/SCE Report, arsenic concentrations attenuate rapidly with distance from these low-redox zones, indicating lack of mobility in the groundwater system. For these reasons, the presence of dissolved arsenic at almost the same concentration as total arsenic in certain, isolated wells does not contradict the observation that arsenic is largely immobile in the groundwater system, and the overall distribution of arsenic concentrations supports this assertion.
NEFT	29	Pages 482-484, Section 8.12.6.1: This section contains another illustration of how the report presents conclusions without clear validation or supporting evidence. The section has a very detailed discussion of how the mobility of arsenic is reliant on pH, redox and other geophysical factors such as total organic carbon (TOC). Yet there is no evidence presented that any of these mechanisms exist at the site and are limiting the movement of arsenic species into the groundwater. The report does mention that the data indicate that metals found at the site are localized near known source areas and are not subject to ongoing transport. There is no discussion of potential arsenic speciation or the actual data that supports the conclusion.	See the response to Comment 28 above.
NEFT	37	CTECH's Environmental Visualization System/Mining Visualization System (EVS) model was used extensively to support conclusions regarding fate and transport. However, no screen shots, or statistics using the tools available in the EVS software (e.g. drill guide) were presented to validate the conclusions that the data collected over the 30 years is spatially comprehensive (horizontally and vertically) within and downgradient of potential source area flow paths. Revisions to the RI report are recommended to include supporting information and evaluations from EVS. This would include additional parameter documentation on the kriging variogram calibration and a statement of confidence that bound parameters for each model support conclusions that the data set for each medium is complete and the potential source areas and migration pathways are adequately characterized to support remedial decisions. These geostatistical parameters can be also be used to illustrate the degree of site characterization.	The use of visualization figures will be incorporated into a supplement to Section 8.0 of the RI/SCE.

Comment Category	EPA Comment Number (s)	EPA Comment	StarLink Response
NEFT	74	Section 17 should draw specific conclusion regarding the need for source control measures to address RP contaminants in specific media. Information regarding the environmental fate and transport of contaminants and the potential for contaminants released at the RP site to present unacceptable risks to Willamette River receptors should be presented and documented to support these conclusions.	Conclusions regarding the SCE, including need for an SCAA, are provided in Section 17.4.
NEFT	75, 88	No. 75 - There is an overemphasis on the waste handling practices at adjacent facilities. While it is true that there are many other facilities in the Doane Lake area that have released contaminants that may adversely affect the Willamette River, the conclusions section should focus on releases and contaminant migration pathways associated with the RP facility.	See above response to comment 5.
NEFT	86	Page 706, Section 17.4.1.1, Second Bullet: The discussion of arsenic in shallow groundwater at the RP site should discuss the extent to which natural or contaminant induced groundwater conditions are solubilizing arsenic at the RP Site.	See the response to Comment 28 above.
Beneficial Water Use Determination (BWUD)	34, 35	No. 34 - The conclusions made about the likelihood of future beneficial uses of groundwater within the RP Location of Facility (RP LOF) are based on existing poor water quality conditions, such as high levels of metals and dissolved solids. However, there is no distinction or recognition between the level of concentrations in these contaminants related to natural versus anthropogenic sources. Identifying this is essential to the complete evaluation of future beneficial uses and a primary goal for source control activities. The report should expand on this evaluation to include future uses after source control and cleanup objectives are met.	DEQ directed StarLink not to consider future uses after source control and cleanup objectives were met. StarLink provided a revised BWUD to DEQ in late 2011 that addressed DEQ's preliminary RI/SCE Report comments dated August 2, 2011.
HHRA **Ecological Risk Assessment (ERA)** **Hot Spot Evaluation**	38, 39, 41, 42, 43	No. 38 - Overall, summaries of risk assessments for the RI are deficient. Apparently, both human health and ecological risk assessments are still being finalized, and, as a result, only very generic text is included. Risk assessment summaries should include at the least a summary of the site characterization and Constituents of Potential Concern/ Constituents of Potential Ecological Concern (COPC/ COPEC) selection; a description of exposure conditions; a copy of site conceptual exposure model(s); a list of sources for toxicity criteria, along with a summary of any atypical issues with these criteria; summary tables of risk and hazard estimates, along with a description of the most important COPCs/COPECs and exposure pathways; a discussion of important uncertainties (e.g. incremental risks associated with background); and a summary of conclusions concerning current and possible future human health and ecological impacts. Much of this information is missing from the brief summaries provided. As a result, it is difficult to determine if the risk assessment results have been fairly and accurately characterized for subsequent incorporation into the FS.	The details that EPA requests that are part of the human health risk assessment (HHRA) for the Rhône-Poulenc property and the North Doane Lake (NDL) ERA were not completed when the RI/SCE Report was submitted. The HHRA was submittal to DEQ in June 2012. The ERA was finalized and submitted to DEQ in March 2011. The details EPA seeks can be found in those documents.
HHRA	40	In some cases, descriptions of "unacceptable" risks seem inaccurate. For example, in Section 12.3.2., the statement "Unacceptable cumulative cancer risk is 2E-06" seems to be at odds with Oregon Department of Environmental Quality (DEQ) guidance that provides an acceptable risk level of 1E-06 for individual carcinogens and 1E-05 for multiple carcinogens. In a number of other instances, cumulative risks seem to be less than 1E-05 (it is not possible to make a determination for individual chemicals). Descriptions should include statements such as "unacceptable risks for chemical A exceeded 1E-06, but cumulative risks were below the DEQ target of 1E-05 for exposure to multiple carcinogens" where appropriate. A more complete description of risk assessment results, along with tables that present these results, would likely eliminate such confusion. Figures showing distribution of risks across the site, if available, would also be useful.	The requested information is provided in the Final NDL HHRA, dated July 8, 2010, in the Revised ERA for NDL, dated March 21, 2011, and in the Revised Final HHRA for the Rhône-Poulenc property, dated June 25, 2012.
SCE	1	"Distance to River" estimates are reported as 2,000 feet. However, these measurements appear to be taken from the southwestern-most portion of the property Rhone-Poulenc (RP) Insecticide Area (IA) & Herbicide Area (HA) closest to Highway 30 and do not factor in the RP Northwest Property Area (RP NPA), or historical location of the riverbank prior to backfilling activities in the 50s and 60s. Therefore, this distance does not represent all possible chemical constituent travel distances. Distance to river estimates should be presented as a range. The drainage ditch that runs along the western end of the West Doan Lake (WDL) Area is the primary source area at the site. The distance from the drainage ditch to the river for this area and other potential RP source areas is significantly less than 2,000 feet.	Specifically the RI/SCE Report states "The former plant area is approximately 2,000 feet from the River…" This statement reflects the distance between former manufacturing and formulation areas to the River. The distance between the head of the LADD (where it historically discharged into former WDL) and the River is not significantly less than 2,000 feet.

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SCE	25	While it appears that many contaminants present at the RP site have not been detected in groundwater adjacent to the river (with the possible exception of contaminants detected in the stormwater sewers presumably addressed in the IRAM), key chemicals are likely being transported by groundwater flow and include dichlorobenzene isomers, Silvex and arsenic. Therefore, it is important that an objective evaluation of the potential for groundwater releases at the RP site to impact the Willamette River is performed.	StarLink has completed an objective evaluation of groundwater releases that may impact the River. The DEQ-approved JSCS screening evaluation process for the Rhône-Poulenc Site included evaluating every detected COI in the Rhône-Poulenc Site database regardless of whether the COI was attributable to a Rhône-Poulenc source or off-property source. Figures depicting the distribution of dichlorobenzenes, Silvex, and total and dissolved arsenic were provided in Appendix K. The RI/SCE in fact clearly states that dichlorobenzene and Silvex are detected in groundwater at the River. Arsenic from the Rhone-Poulenc facility is not transported to the River in groundwater.
SCE	26	Page 91, Section 8.1.1.2, First Paragraph: The report states that "the distribution of all volatile organic compounds (VOCs) associated with RP sources occur within the areas where 1,2-dichlorobenzene and vinyl chloride are detected. Collectively, these two Constituents of Interest (COI) define the extent of RP-related COIs in groundwater." Yet the Pathway Screening Evaluation Tables contained in Appendix J indicate many other potential COIs. The Source Control Evaluation (SCE) must evaluate all chemicals that pose a potential risk to the Willamette River. If the distribution and extent of the RP chemical release in groundwater is to be defined by only these two chemicals, then the report should provide detailed rational why other constituents are considered not representative.	The DEQ-approved JSCS screening evaluation for the Rhône-Poulenc Site included evaluating all detected COIs in the Rhône-Poulenc Site database regardless of whether the COI was attributable to Rhône-Poulenc or a third party. The RI/SCE Report correctly states that the distribution of all VOCs associated with Rhône-Poulenc sources occur within the areas defined by the extent of 1,2-dichlorobenzene and vinyl chloride in groundwater. Collectively, these two COIs define the maximum potential extent of Rhône-Poulenc-related COIs in groundwater. The listing of a constituent on the Appendix J tables does not mean it is attributable to Rhône-Poulenc.
SCE	45	This section is highly repetitive and many issues are common to the analyses of individual hydrologic units/ sources. Rather than repeat the same comment many times, most comments are provided as general comments and need to be considered as applicable throughout the section.	Comment noted.
SCE	46	Analyses in Section 16 depend heavily on conclusions from earlier report sections. Sections 3, 6 and 8 are cited occasionally in Section 16, but this list may not be inclusive. In as much as comments on earlier sections change interpretations of chemical fate and transport to the river, Section 16 will have to be revised to reflect such changes.	Comment noted.
SCE	47	Throughout the Section, the text reaches conclusions that other RPs are responsible for certain chemicals and that these RPs need to address these chemicals and their migration to the river in a Source Control Alternatives Analysis (SCAA). RI documents are not decision documents, and RPs should not be making risk management decisions for other RPs. The Section should present defensible interpretations of available data, point out any data gaps that limit confidence in these interpretations, and leave any decisions on what needs to be further evaluated and by whom to regulatory agencies. All language as exampled above should be removed from the text.	The DEQ-approved JSCS pathway screening evaluation for the Rhône-Poulenc Site specifically allows for evaluation of third party contributors to a pathway (See Figure 16-A Tier 2, Pathway Priority Evaluation, and Tier 3). The SCE presented in the RI/SCE Report appropriately considers potential contributions by third parties for pathways where third parties have contributed COIs based on available historical records and as documented by the available investigations conducted at relevant properties along transport pathways between the Rhône-Poulenc property and the River. Defensible interpretation was presented for each pathway based on data contained in the Rhône-Poulenc database and as available from relevant properties. The identification of potential third-party sources and migration pathways is not risk management decision making but is necessary to evaluate the potential need for source control measures. However, we agree it is the regulatory agencies responsibility to require investigations of releases at other Responsible Party's properties, and that adequate investigation and evaluation of these third party sources by the responsible parties is important to understanding nature and extent.
SCE	48	The Section is filled with non-informative terms such as "potential COI" and "potential SCAA". Chemicals detected and run through the screening are COIs; they are" of interest", otherwise they would not enter the screening process. Chemicals become COPCs once they have gone through the screening process and are identified for further source control evaluation. The term "potential SCAA" has no meaning. One might say something like "chemical X might be considered in a SCAA". This reviewer has never seen a document titled "Potential SCAA for ..... " All instances of "potential COI "and" potential SCAA" should be removed, and, in general, no need exists for multiple hedges in the same and adjacent sentences.	The term "potential" was applied to the terms "COI" and "SCAA" to reflect that there may be a third party responsible for a particular COI and SCAA.
SCE	49	The analyses in this section are not adequately supported by citations and summaries of previous sections of the report. As an important example, the report frequently indicates that a chemical is not continuously observed between the RP source and the riverbank. Earlier sections of the report should be frequently cited and brief summaries of the analyses should be provided that present evidence that wells are located appropriately and data were collected from these wells to support the analyses. In particular, figure(s) showing well locations along with the conceptual geohydrologic model(s) should be referenced, or developed, to show the data are adequate to assess the movement of COI toward the River. The current figures showing sampling locations are not sufficient to show how sample locations fully characterize migration in groundwater.	The information presented was a reasonable balance between the volume of information about nature and extent of COIs in a RI section and repeating that information in the SCE. StarLink provided 320 figures for 80 COIs (Appendix K) that included all available analytical data screened against the DEQ-approved SLV for each individual stratigraphic unit. The list of COIs used to generate the figures was approved by EPA and DEQ in a June 3, 2010 letter.

Comment Category	EPA Comment Number (s)	EPA Comment	StarLink Response
SCE	50, 53	No. 50 - The correct use of RSLs is essential to the overall SCE. If low bias exists as a result of the selection of a higher than recommended RSL, some COIs could be inadvertently screened out, thereby resulting in a lower priority for source control in the SCE screening process. As noted previously, uncertainty with selection of SLV s for various COIs may be present as noted in Section 8 comments (see Section 8, Comment 26). A more detailed discussion on these COI-specific SLVs presented in report figures (e.g. Appendix H) and how they relate to the SLV s selected in the JSCS SCE screening is needed.	StarLink spent extensive time and resources to obtain DEQ's approval on the appropriate SLVs to be used in the SCE for each individual COI. Detailed discussion is provided in Section 16.1.2 and SLVs are presented on Tables J-1 and J-2. SLVs were used in the SCE in place of regional screening levels (RSLs) because SLVs are commonly more conservative screening levels that account for potential exposures to a wider variety of receptors; RSLs are developed primarily for human receptors.
SCE	51	Chemicals without SLV s were eliminated without further explanation in almost all cases. Such chemicals should be discussed in terms of their potential to be important contributors to any impacts associated with releases to the river. Various lines of evidence could be brought forward such as expected chronic toxicity based on available data, relative concentrations, findings from draft RI and risk assessments for the Harbor, etc. If chemicals cannot be eliminated from the analysis in this way, they should be retained for possible qualitative analysis in a SCAA.	The DEQ-approved JSCS pathway screening evaluation for the Rhône-Poulenc Site specifically allows for such chemicals to be eliminated and not retained for an SCAA (Tier 1 JSCS SLV Comparison). The number of COIs without SLVs was relatively low in comparison to the COIs that were quantitatively evaluated.
SCE	52	Chlorinated dioxins/ furans are evaluated as separate chemicals rather than as a group. Dioxin/furan congeners should be evaluated as 2,3,7,8 tetrachlorodibenzo-p-dioxin (TCDD) equivalents. When data allow, dioxin-like polychlorinated biphenyls (PCB) congeners should be added to TCDD equivalents. Any combined total including PCB congeners should be evaluated separately. Likewise, carcinogenic polycyclic aromatic hydrocarbons (PAH) should be evaluated as a group using benzo(a)pyrene equivalents. Other groupings should include DDx (sum of all isomers of dichlorodiphenyltrichloroethane (DDT), dichlorodiphenyltrichloroethylene (DDE), and dichlorodiphenyldichloroethane (DDD)), and total chlordanes. Using these groupings is technically correct and maintains consistency with the Harbor-wide RI/FS process.	Polychlorinated dioxins/polychlorinated dibenzofurans (PCDDs/PCDFs), PCBs, DDx, chlordanes, endosulfans, and hexachlorocyclohexanes were evaluated separately and as a totalized value (See Tables J-4 through J-23, except for PCDD/PCDFs, which inadvertently did not include screening of TEQ values). Totalized values were also compared to SLVs and presented on figures in Appendix K. PAHs are not considered a Rhône-Poulenc COI and thus totalized values were not established; neither DEQ nor EPA suggested this would be necessary during review of the representative compound list provided in Table J-25. In general, however, Oregon regulations specifically require evaluation of individual chemical substances, except as required for evaluation of cumulative risk from exposure to multiple carcinogens, make no allowance for evaluation of totalized concentrations, and especially in cases where a toxicity equivalency factor (TEF)-based equivalent of some type is calculated.
SCE	54	The adequacy of detection limits/reporting limits should be discussed in reference to the conclusions that RP COIs were not detected, or were not continuously detected, and therefore are no longer of interest to the SCE. Extremely low screening levels for some constituents in water require that the issue of detection limits and their impact on conclusions regarding contaminant transport be evaluated and incorporated into the Section 16 analyses. Presumably, detection limit issues have been adequately addressed in earlier sections of the report and can be summarized in each separate evaluation in Section 16.	StarLink does not agree with this comment. Regulatory actions of all kinds must be based on measureable data, and not on speculation concerning what might possibly be present. There are no validated, approved methods that allow measurement of dioxins and multiple other constituents at concentrations consistent with their SLVs. There is no EPA or State regulatory guidance that requires the assumed presence of a constituent absent reliable detections using fully validated and approved methods. Absence of detectable concentrations of any target analyte using standard, EPA-approved methods proves compliance.
SCE	55	The information presented in Appendix J and the Section 16 text is somewhat confusing. It appears that certain chemicals exceeding screening criteria exist at the riverbank and are COIs at the RP site but because they were not continuously detected (see column D-6 in the JSCS evaluation tables in Appendix J), they were not identified as a COPC for the source control alternatives evaluation. It seems that a more thorough evaluation is required rather than relying on the flow chart type approach presented in the Appendix J tables. Just because chemicals are not "continuously present between IA, HA, or LADD and the Riverbank" does not mean that it is not an RP contaminant. There should be another way to ascertain whether source control measures are needed to address RP constituents detected in river bank groundwater.	EPA's comment illustrates the nature of the problems with the lack of data about releases on neighboring sites. Apparent anomalies in the distribution of a number of constituents in samples collected at a distance from the former Rhône-Poulenc facility are most likely related to the presence of sources on these neighboring properties and not related to former Rhône-Poulenc operations. Most of these properties have documented or likely releases and have inadequate or no investigations by the parties responsible for the releases. The attempt by DEQ and EPA to evaluate nature and extent of constituents in groundwater at the former Rhône-Poulenc property and vicinity properties as if it resulted only from releases by Rhône-Poulenc results in the perception of apparent inconsistencies and anomalies. These inconsistencies and anomalies would largely be resolved by adequate investigation of releases by responsible parties on these neighboring properties. StarLink objectively evaluated groundwater releases that may impact the River. The DEQ-approved JSCS screening evaluation process for the Rhône-Poulenc Site included evaluating every detected COI in the Rhône-Poulenc Site database regardless of whether the COI was attributable to a Rhône-Poulenc source or off-property source. The resulting list of COIs were further evaluated for those attributable to Rhône-Poulenc and those attributable to a third party. This evaluation considered the fate and transport of the COI, if the COI was continually present along the transport pathway from a Rhône-Poulenc source to the point of discharge at the River, and if the COI could represent a potential future source to the River.

Comment Category	EPA Comment Number (s)	EPA Comment	StarLink Response
SCE	56	Several aspects of fate and transport of COI in groundwater are not mentioned in Section 16, and it is difficult to determine if (1) they were considered at all and (2) if they have any impact on conclusions. First, the issue of co-transport of contaminants is not mentioned. TPH-G and TPH-D were detected in groundwater in a number of wells. These hydrocarbon mixtures could transport less soluble organic constituents. They could be COPCs as much for their facilitation of transport as for their toxicity. Second, effects caused by degradation of organic chemicals in the subsurface can affect pH and Eh which can cause mobilization of aluminum (Al), arsenic (As), iron (Fe) and/ or other inorganic constituents. Thus, even naturally occurring constituents might become" site-related" contaminants due to changes in solubility under different pH and redox conditions. Third, degradation of some COIs, e.g. chlorinated solvents, is also dependent on redox conditions. Lack of continuous observation of degradation products could be a function of differing redox conditions rather than lack of transport. All or none of these possibilities might be important for the SCE, but all should be addressed.	StarLink will consider the need for further discussion of these facets of fate and transport as it affects conclusions. Further consideration of TPH in groundwater in downgradient locations away from Rhône-Poulenc source areas is not necessary because these TPH data are actually caused by chlorinated benzenes that were detected by the non-selective method used to analyze for TPH. A review of chromatograms was conducted and presented in the RI/SCE Report (Section 8.11, Appendix I) to better understand the nature and extent of TPH. The chromatograms for the majority of groundwater samples analyzed clearly indicate the presence of specific peaks rather than a petroleum hydrocarbon pattern.
SCE	57	In a few cases, data for a COI inadequately supports the SCE. These chemicals should be flagged and discussed as data gaps. It would also be useful to know, specifically, why the data is inadequate. If necessary, the report should recommend collection of additional data. Otherwise, the report should provide justification for the conclusion that the data gap is not critical to completion of the SCE.	The number of COIs with limited data sets is very small as compared to the number of COIs that were quantitatively evaluated. Any data gaps identified for a particular COI or class of COIs was presented in sections labeled Potential COI Identification and Tier 1 – SLV Comparison and included on the SCE Pathway Screening Evaluation Table column D1A. As noted in these sections, there were no data gaps identified that were critical to the SCE.
SCE	58	In many instances, COI are eliminated from further consideration because they "are not considered mobile". However, no definition of "mobility" is provided (e.g. no criteria are given), and no list of "non-mobile" chemicals is provided. The text should be clear on how mobility was assessed.	Mobility is defined in the notes section of each SCE Pathway Screening Evaluation Table in Appendix J.
SCE	59, 60, 69	No. 59 - Comparisons with background are not consistent. In some cases, exceedances of 15-times background are dismissed; at other times exceedances of 5x background are considered important. In general, interpretations of background exceedances seem always to favor the interpretation that RP is not responsible. Section 16 needs to start with a description of how comparisons with the background will be made and interpreted, and then this plan needs to be followed through the assessment objectively. For example, if RP wants to argue that available background data are in some cases inadequate, it needs to lay out a plan for evaluation of background concentrations and present the results of the evaluation to either support or refute its position.	StarLink followed a prescribed process as approved by DEQ to evaluate inorganics. As described in Section 16, inorganics were screened against DEQ-approved SLVs in Tier 1-SLV Comparison. Retained COIs were then evaluated in Tier 2-Source and Pathway Identification and Pathway Priority Evaluation. For those COIs identified as medium-priority, the inorganic detections were further screened against a DEQ-approved site-specific background value under the Tier 3-Weight of Evidence Evaluation. If COIs exceeded the site-specific background value, additional Weight of Evidence was applied including frequency of detection, frequency of exceedance, location of exceedances, and comparison to regional concentrations in soil and groundwater to name a few. This prescribed process was applied consistently for all inorganic constituents.
SCE	61	Page 518, Section 16, First Paragraph: The last sentence instructs DEQ on how to use the JSCS screening. This sentence should be removed. DEQ will make decisions separately from the RI, using RI results and any other pertinent information.	The last sentence states “However, for pathways considered for source control measures, constituent sources will be evaluated by DEQ to determine what responsible party or parties will perform a SCAA for a particular COI or groups of COIs”. The DEQ-approved JSCS pathway screening evaluation flowchart presented on Figure 16-A specifically states “DEQ to take third party source elevation into consideration in determining party responsible for performing SCAA for particular COIs or groups of COIs”.
SCE	62	Pages 520-522, Section 16.1.2: This section questions a number of the JSCS SLV s used as the initial step in the evaluation. Because these are screening levels, any discussion of the inappropriateness of the JSCS SLV s should be applied during the SCE itself.	Comment noted.
SCE	63	Page 525, Section 16.1.4.1, First Paragraph: This section states that if the "COI is near or below a factor of l0x the SLV at the point of discharge to the River (or closest monitoring point)" the COI will be a low priority COI. Justification should be provided for the factor of 10 used to determine if a COI is "low-priority". Furthermore, this is inconsistent with the JSCS which states that "A low-priority site will typically be defined as not exceeding appropriate SLV at the point of discharge to the river. No further source control efforts will be required at this time for low-priority sites."	As EPA has stated, the JSCS states, “A low-priority site will typically be defined as not exceeding the appropriate SLV at the point of discharge to the river.” There are other factors to consider to determine if the site is of low priority. In addition, there is a difference between near-river groundwater concentrations and concentrations at the point of discharge to the River. Use of a dilution-attenuation factor (DAF) of 10 as an approximation of a site-specific DAF is a common and accepted practice in this type of screening evaluation, and 10xSLV in near-river groundwater is, therefore, considered an acceptable and likely conservative approximation of conditions that could possibly represent concentrations that exceed the SLV at point of discharge to the river.

Comment Category	EPA Comment Number (s)	EPA Comment	StarLink Response
SCE	64	Page 526, Section 16.1.4.2, List: Criteria for placing a chemical in the high-priority category seem too restrictive. For example, if a chemical has been identified as a risk driver in the Harbor-wide Human Health Risk Assessment (HHRA) or Baseline Ecological Risk Assessment (BERA) and concentrations exceed some multiple of SLV, it should be placed in the high priority category. Likewise, if risks locally (i.e. within Area of Potential Concern (AOPC) defined for different river reaches) have significant components attributable to additional COPC not identified as risk drivers, these chemicals should also be automatically assigned high priority if concentrations are sufficiently high. RP should provide justification for using 1,000x SLV s as a criterion for assigning COI to high-priority status. Criteria involving bioaccumulation potential, half-life, etc. are subsumed in the assessments performed in the HHRA and BERA.	The evaluation process presented in the SCE for identifying a high priority COI consists of seven criteria which are consistent with the criteria provided in the JSCS and are also consistent with SCE work conducted at vicinity properties , and include those listed by EPA in this comment: 1. COI exceeds the SLV by more than a factor of 1,000 at the point of discharge to the River (or closest monitoring point); 2. COI is identified as an indicator chemical in the Lower Willamette Group (LWG) Portland Harbor Draft RI/FS, Table 5.0-2 (October 27, 2009); 3. COI is detected in each of the four Riverbank regions (groundwater pathways only); 4. COI is considered bioaccumulative. 5. COI is considered to have a long half-life (i.e., greater than 1 month) and/or is mobile in the environment per Hazardous Substances Database (HSDB); 6. COI has propensity to accumulate in sediments per HSDB; and 7. COI is present at concentrations of sufficient magnitude to significantly contribute to mass loading to the River (i.e., COI exceeds the SLV by more than a factor of 1,000 at the point of discharge to the River [or closest monitoring point]). In addition, EPA's statements about criteria for classification of a site as high priority contradict the definitions given for high, medium, and low priority on page (iii) of the JSCS, and does not take attenuation factors between near-river groundwater and receptors in the River into consideration. A DAF of 10 between near-river groundwater and the river is a reasonable assumption for this type of screening level evaluation. The JSCS clearly intends for concentration differences to be used as one metric for differentiating site priority. A starting pointing of the SLV (=10xSLV with the DAF) for low priority, 10xSLV (=100xSLV with DAF) for medium priority, and 100xSLV (=1000xSLV with DAF) for high priority is a reasonable approach for this type of screening level evaluation, and is consistent with the JSCS. Finally, the purpose of a high priority ranking is to identify sites/constituents/pathways that require remediation in an expedited timeframe, consistent with an early action. Sites/constituents/pathways that can be adequately addressed through the normal RI/FS/RD/RA framework are more reasonably classified as medium priority. This is illustrated by the planned placement and design of the hydraulic containment remedy at the Arkema Site. COI concentrations presented by Arkema for the nearest well located outside the planned slurry wall shows that concentrations range from about 30xSLV for DDx to around 600xSLV for PCE. Remedial action for the area around this well will be integrated into sitewide remedy, and this part of the site has been left out of the early action framework. This decision, which has been approved by EPA and DEQ, is consistent with the evaluation framework presented in the SCE Report.
SCE	68	Page 570, Section 16.4.3, First Paragraph: The text may confuse mass and concentration. If mass is to be addressed, the text should provide some idea of relative flux to the river. Just mentioning concentrations and "limited extent of groundwater" doesn't provide sufficient information. Note that the meaning of "limited extent" is unclear. Furthermore, the primary issue to evaluate is not the contribution from other sources, but rather whether or not specific RP constituents constitute a source of contamination to the river that warrant control.	StarLink disagrees with this comment. The limited extent and mass are also supported by in-River data collected and presented by the LWG.
SCE	69	Page 577, Section 16.4.3.5, Third Paragraph. The issue of polychlorinated dibenzo-p-dioxins (PCDD)/polychlorinated dibenzofurans (PCDF) in groundwater warrants further evaluation than presented in this section of the document. The groundwater monitoring has resulted in sporadic detections of PCDD/PCDF downgradient of the key RP dioxin source areas and at the riverbank. The authors have developed arguments that these detections are the result of laboratory contamination. The question of whether PCDD/PCDF is being transported to the Willamette River via groundwater flow has significant implications for source control. Given the low solubilities of dioxin congeners, it is surprising to see them detected in groundwater so far from the source area. As a result, a more thorough and robust evaluation of this contaminant migration pathway is required. The statement that dioxin detections are the result of other sources seems unsubstantiated.	A detailed discussion of PCDD/PCDFs in groundwater was presented in Section 8.9 of the RI/SCE Report. EPA's comments seem to incorrectly imply that there is a single source area (the former Rhône-Poulenc facility) for PCDD/PCDFs in the area addressed by the RI/SCE Report. In fact, dredged materials are present in much of this area, and PCDD/PCDFs consistent with a source related to the former Rhône-Poulenc facility are detected in groundwater only near source areas known to be associated with the former Rhône-Poulenc facility. PCDD/PCDFs detected in groundwater in other areas have characteristic fingerprints consistent with other sources, including chloralkali manufacture at Arkema, generalized combustion sources, and sources related to placement of dredged materials.
SCE	70, 87	No. 70 - Page 587, Section 16.4, Last Paragraph: The last sentence discusses overlapping plumes. A figure, or reference to a figure presented earlier in the text, is needed to illustrate where such overlap occurs. The text does not provide any indication of the significance of this overlap. This instance is one of many where supporting information is needed before the conclusions of the JSCS process can be fully evaluated.	StarLink provided plume figures for key constituents in the Draft Source Control Evaluation Report dated February 13, 2008. Previous publicly available evaluations, including these figures, were relied on when developing the revised SCE. Additional figures will be provided in a supplement for Section 8.0 of the RI/SCE Report.
SCE	71	Page 634, Section 16.8.2, Bullets: Definition of" continuously present" in the three bullets is problematic. Without consideration of detection limits, and with the realization that several important COI have SLVs in water that are very low, requiring detection in stormwater at the outfall may not be protective. A COI should be considered continuously present even if not detected, if DL exceeds relevant SLV.	This statement by EPA regarding application of detection limits to non-detect results is inconsistent with regulations under the Clean Water Act, as well as other sources. Regulatory actions of all kinds must be based on measureable data, and not on speculation concerning what might possibly be present. There are no validated, approved methods that allow measurement of PCDD/PCDFs and multiple other constituents at concentrations consistent with their SLVs. There is no EPA or State regulatory guidance that requires the assumed presence of a constituent absent reliable detections using fully validated and approved methods.

Comment Category	EPA Comment Number (s)	EPA Comment	StarLink Response
SCE	72	Page 651, Section 16.9.2, First Paragraph: Erosion of material associated with the HDD should be evaluated as part of the SCE. Contaminants present in surface soils may erode to the river without being fully inundated during a flood event. Chemicals associated with the RP site such as 2, 3, 7, 8-TCDD have been detected in surface soils in the historic drainage ditch area at levels that may have an effect on Willamette River receptors.	Erosion of surface materials from the HDD was evaluated in the SCE. The data set used to evaluate the HDD pathway included analytical results for 17 surface soil samples collected in and immediately surrounding the HDD (samples were collected in 2002 and 2004 from 0 to 2 feet bgs.) However, the HDD is heavily vegetated and it is unlikely that significant erosion of soil could occur, even during a flood event.
SCE	73	Page 664, Section 16.10: Bank Erosion should not be considered a low priority. 2,3,7,8-TCDD is detected at concentrations up to 1,773 times the SLV in surface beach samples. Although certain contaminants such as 4,4'DDT may be the result of other sources such as the Arkema Site, 2,3,7,8-TCDD is a known marker of RP contamination arising from the still bottoms associated with 2,4-D production at the RP site. Due to the bioaccumulation potential and toxicity of 2,3,7,8-TCDD and the presence of other contaminants (e.g., chlorinated pesticides) bank erosion should be high priority for source control.	Bank Erosion is a medium priority pathway because of the presence of SVOCs, organochlorine insecticides (OCIs), and PCDDs/PCDFs from sources other than the Rhône-Poulenc facility, and may require a potential SCAA by parties other than StarLink. Bank Erosion is a low priority pathway for the former Rhône-Poulenc Site SCE because the extent of Rhône-Poulenc COIs contributing to this section of the Riverbank is small in comparison to the Arkema site.
SCE	79	Page 685, Section 17.1.3, Third Paragraph: The statement: "Most constituents found at the River are not primarily a result of activities at the RP property" is a broad, overgeneralization. It is likely that key constituents such as 1,4 and 1,2-dichlorobenzene in groundwater and 2,3,7,8-TCDD in beach and riverbank soils are primarily the result of releases at the former RP facility.	The statement was intended to be a generalization regarding the limited constituents attributable to Rhône-Poulenc at the Riverbank. The statement as reported is correct. Accurate description of relative source contribution is an accepted practice in preparing remedial investigation text about multi-party sites, and it is critical to understand relative source contribution to adequately address possible remedial action.
SCE	83	Page 689, Section 17.2.1, Second Paragraph: The discussion of VOC distribution should offer up some conclusions regarding the VOCs from the standpoint of source control. For example, the discussion should conclude that 1,2-dichlorobenze, 1,4 dichlorobenzene and vinyl chloride are the VOCs associated with the RP site with the greatest potential to affect in-water receptors. This discussion may be presented in Section 17.4.	EPA correctly identifies that this discussion is included as part of the SCE conclusions in Section 17.4.
SCE	84	Page 690, Section 17.2.2, Fourth Paragraph: The report should clarify whether natural attenuation of chlorinated phenols released at the RP site is sufficient to prevent discharge to the Willamette River at levels posing a potential risk to human health or the environment. This discussion may be presented in Section 17.4.	EPA correctly identifies that this discussion is included as part of the SCE conclusions in Section 17.4.
Third Party	65	Pages 528-545, Section 16.2: This is an example of the extreme repetitiveness of the document and over-emphasis on other sources. This section presents non-RP sources at least 15 times in 18 pages, sometimes being repeated in paragraphs separated by only a few lines of text.	The level of detail discussing non-Rhône Poulenc sources is necessary because of limited or no investigations on neighboring properties and evidence of third party contributions in the LOF.
Third Party	76	Page 680, Section 17.0, Second Paragraph: The report acknowledges that other parties have contributed contamination in the vicinity of the RP site and that the SCE identifies constituents contributed by RP and those contributed by other parties. While it is true that there is a comingling of contaminants associated with the various contaminant migration pathways, source control measures should be developed and evaluated for any RP constituents that pose a potential risk to in-water receptors whether or not those contaminants are comingled with contaminants associated with nearby facilities.	StarLink will address constituents related to the former Rhône-Poulenc facility. Parties responsible for the constituents present in a given pathway should also be responsible for completing SCE activities.
Third Party	77	Page 680, Section 17.1, First Paragraph: The RI Summary should acknowledge the data collected as part of the Portland Harbor RI (sediment and porewater) as well as the various upland investigations performed by other parties in the vicinity of the RP site.	The referenced paragraph summarizes investigation activities specifically conducted for the former Rhône-Poulenc Site, which only address the upland area of the Site
Third Party	80	Page 685, Section 17.1.3, Fourth Paragraph: The statement: "Environmental investigations by riverfront property owners are limited in lateral and vertical extent or analytes and may not have occurred in areas away from the River that are impacted" is not necessarily true. Although it may be accurate in some specific instances, these instances should be fully documented.	StarLink provided detailed information regarding the inadequacy of third-party remedial investigations in Appendix L of the RI/SCE Report. For example, details regarding inadequate investigations on the Arkema site are provided in Appendix L Section 1.3 Site Investigations and Adequacy.
Third Party	82	Page 688, Section 17.2.1, Second Paragraph: While the list of specific sources VOCs beyond the RP site is generally accurate, it is unclear what VOC sources are associated with" general industrial use of VOCs as solvents, in fuels, and in chemical manufacturing." This statement should be substantiated or deleted.	Information relevant to this comment is included in Appendix L of the RI/SCE Report.
Third Party	85	Page 693, Section 17.2.5, First Paragraph: Additional documentation of the location of the DDT at the Willbridge site should be provided. Any statements regarding the disposal of DDT waste at the Willbridge site should be appropriately referenced and documented.	StarLink provided information regarding the storage and on-site disposal of DDT at the Willbridge Site in Appendix L of the RI/SCE Report. See Appendix L, Section 7.0 Willbridge Site, specifically Section 7.22 Activities, Processes, and Chemicals Used/Waste.

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Database	2	There are several statements throughout the document made regarding database issues. These are summarized in Section 0.4. To understand the extent of the database issues and its impact to the 30-year data set, the document should provide additional statistical information related to the validation and corrections. This would include statistics on the percentage of data dropped and/ or considered suspect by constituent group and temporal scatter plots showing the distribution of data over time removed by the data filtering process. A description of this analysis and its results would be presented in the Data Completeness Evaluation (Section 11) which currently provides only a brief statement on the number of samples for each media and location.	Multiple sections including Section 8.1.3 and Section 11.0 of the RI/SCE Report discuss the evaluation of all data regardless of data quality as directed by DEQ. If any data quality issues were noted in the data set, they were outlined in Section 8.1.3 and the Data Usability subsections for each chemical class. Because no data were dropped from evaluation in the RI/SCE Report, the qualitative discussions provided in the Data Usability sections should be sufficient to understand the extent and impact of the database issues.
Database	3	Page xlviii, Section 0.8.5, Fifth Paragraph: RP provides statistics on detections of organo-phosphorous insecticides (OPI). This set of basic statistics should be provided for all of the constituents within the RP source areas to allow for easy comparison between constituents and the degree of contamination found at the source areas.	StarLink disagrees that this evaluation is needed. Providing basic statistics for each constituent class would not provide the easy comparison EPA is suggesting because not all constituents were analyzed in all samples or during all investigations. Further, elevated nondetect values are present in the data sets for some constituent classes where a single constituent detected at a very high concentration caused all other constituents to not be detected at very high detection limits. These nondetects would inadvertently contribute to statistics that are not representative of actual concentrations. Finally, interferences common to the analytical methods used to analyze samples for some constituent classes (e.g., OCIs, TPH, PCDD/PCDFs) would contribute an extremely high level of uncertainty because of data quality issues.
Database	4	Page lx, Section 0.11, Second Paragraph: RP states that older data results were compared with more recent data to evaluate representativeness of the older results. However, RP should explain how the temporal data was evaluated in the context of other site data to develop an overall understanding of groundwater fate and transport. This includes an evaluation of the extent to which natural attenuation of the contaminant plume is, or is not occurring. Absent this consideration, comparison of the temporal data in terms of representativeness is meaningless.	Detailed information is in Section 8.0 of the RI/SCE Report. Section 0.0 is a synopsis of the report.
Database	24	Throughout Section 8, the authors relate that data obtained from historic analytical methods, particularly Gas Chromatograph (GC) methods used in the analysis of Aroclors, total petroleum hydrocarbon (TPH) and organochlorine insecticides (OCIs), is suspected of yielding false positives or elevated data. This assertion is backed in part up by *EPA Region 10 Clarification of SW-846 Method 8081 and Supplemental Guidance for Data Review*, dated May 3, 2006, which essentially states that results obtained by GC Electron-Capture Detector (GC-ECD) methods should be confirmed by a GC Mass Spectrometry (GC/MS). Therefore much of the OCI data that was detected below GC/MS reporting limits, and therefore not confirmed, are qualified as estimated and presumptively identified results. Additionally some TPH and Aroclor data were reexamined and deemed not usable or the concentrations have been adjusted due to interfering peaks. The report also continually states that there are over 30 years worth of data used to evaluate the site conditions. Based on this assertion it would seem that there is only a limited data set that is being considered for tracking these contaminates. This leads to the question, is there sufficient data to fully characterize the site with regard to these contaminants?	Limitations of older data (such as pre-2007 OCI data as the example in EPA's comment) apply only to the specific constituent classes and/or analytes discussed. Data completeness is addressed in Section 11.0 of the RI/SCE Report. The conclusion that sufficient data exist to characterize the site applies to all constituent classes, including those with limitations (Section 11.0 and Section 17.5). StarLink has provided extensive information related to these topics. For example: 1. For TPH analysis, it is incorrect to say that the data were "deemed not usable or the concentrations have been adjusted due to interfering peaks." The chromatograms were examined and the TPH results were related to VOCs or phenols rather than TPH. Examining TPH chromatograms to verify TPH is a standard practice. Copies of the chromatograms were provided in the RI/SCE Report to allow verification. The data were not unusable, but were useful in assessing presence of TPH. Some samples contained detectable concentrations of TPH. 2. Information on dioxins and OCIs was previously presented to both DEQ and EPA in the following documents: • Evaluation of The Usability of Groundwater Dioxin Data below the EPA Method 1613B Minimum Level, RP - Portland Site, prepared by AMEC, submitted to DEQ, November 7, 2007. • Data Quality Assessment and Evaluation of the Usability of Insecticide Data from Groundwater Samples, RP- Portland Site, prepared by AMEC, submitted to DEQ, March 21, 2008.
Misc	6	Several references to tables appear to be mislabeled. For example, the text references Tables C-I, C-2, C-3; however, the Tables in Appendix C are labeled C1-1, C2-1 etc. Correcting this will provide clarity between the tables referenced in Section 4 and the tables in Appendix C.	Comment noted.
Misc	7	Page 34, Sections 4.3.6 and 4.3.7: Figures 8-A and 8-B are missing from the report.	The RI/SCE Report incorrectly references the applicable figures for Sections 4.3.6 and 4.3.7. Figure 8-A is Figure H-387 of Appendix H and Figure 8-B is Figure H-386 of Appendix H.
Misc	30	Appendix H, Constituent Specific Trend Plots, Tables H-1 through H-28: The plots should be revised where elevated data points push the concentration scale (y-axis) to levels significantly higher than the other data and/ or Regional Screening Levels (RSL) (see Table H-1, H-3, H-4, ... H-10 etc .....). This can be achieved using scale breaks, or posting dates and oncentrations of one, or two data points on the graph. Plotting trend data this way will allow a reduced scale range that will better facilitate evaluation of concentration trends and their comparison to RSLs.	Comment noted. Plume stability will be discussed in the supplement to Section 8.0 of the RI/SCE Report.

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Misc	31	Appendix H, Distribution and RSL Comparison Figures H-39 through H-385: Some constituents presented in do not use EPA Drinking Water MCLs for recommended Regional Screening Levels (RSLs) when this level is lower than the Tapwater RSL. Not using the lower MCL level for the concentration maps is significant because it appears some conclusions and statements made in the RI for these contaminants are based on higher, less conservative, RSLs and present a better water quality condition for these contaminants than if the lower MCLs are used. For example: Silvex in Figures H-131 through H-133 show a Tapwater RSL of 290 µg/L, yet the recommended Drinking Water MCL in the EPA Regional Screening Level Summary Table - November 2010 is 50 µg/L. Other contaminants with MCLs lower than the Tapwater RSL include, among others, Barium, Endrin and 2-4-D.	Maximum contaminant levels (MCLs) were not used in the RI evaluation for the following reasons: 1. Current or future land use at the Rhône-Poulenc Site does not include drinking water and thus MCLs are not ARARs. 2. Not all MCLs are health based and may not be adequately protective of human health Tap water RSLs are health-protective and were used because the EPA provides an extremely comprehensive list of values.
Misc	32	Appendix H, Distribution and RSL Comparison Figures H-39 through H-385: Other issues with these Distribution and RSL comparison maps include: a. The absence of quantified laboratory detection limits for the results shown as non-detect. This is essential when non-detect concentrations are mapped and used to characterize what level the non-detect concentrations represent. b. Concentrations shown are not time-specific and apparently represent the concentration at that location when the well was last sampled. This technique could display results for chemicals over multiple years to represent a single concentration map. If this is the situation, then, the concentration evaluation does not represent a meaningful interpretation or a distribution of chemical constituents. To represent the distribution of chemicals, the data need to have a defined chronology to account for changes in chemical concentration owing to flow and attenuation. Please revise the concentration maps to show the highest concentration recorded at the sample location (not the most recent), a range of concentration levels, or develop and present layer-specific maps with contoured concentrations at specific, representative time-intervals.	The distribution and RSL comparison figures presented in Appendix H were prepared and submitted as part of the report to aid in evaluating the large amount of data collected for the Rhône-Poulenc Site. The figures do not represent a single "snapshot" of Rhône-Poulenc Site conditions and should not be viewed as a standalone representation of conditions, although they are a useful reference. These figures should be reviewed in conjunction with the written description (Section 8.0) and the figures presented in Appendix F. Appendix F figures illustrate all available data for a particular COI and include the laboratory detection limits for samples that are non-detect.
Misc	66	Page 568, Section 16.3.3.8, Fourth Bullet: The fourth bullet apparently should instead be text that introduces the last three bullets.	Comment noted.
Supplemental Comments	89	Chemicals believed to be unique to RP manufacturing, or RP was likely the major generator of (identified in this tech memo as "Marker Chemicals") are not presented clearly in the Draft RI/SCE report leaving significant uncertainty regarding what specific chemicals RP should be focusing on for source delineation and control. Based on limited information regarding specific chemicals used in RP's manufacturing processes described in Section 8 (Chemical Nature and Extent/Fate and Transport), the following marker chemicals are identified: 2, 4-D, 2, 3, 7, 8- TCDD, 1, 2- Dichlorobenzene,1, 4-Dichlorobenzene, Endrin, Silvex, Arsenic. However, there could be other chemical compounds specifically linked to past facility use.	DEQ specifically directed that the RI/SCE report include detailed discussion of all constituents detected between the former Rhône-Poulenc facility and the River. StarLink agrees that selection and presentation of targeted constituents indicative of historical sources at the former Rhône-Poulenc facility is both more appropriate and more consistent with industry-standard practice for RI reports. StarLink also agrees that detailed discussion of all detected constituents results in a voluminous and potentially confusing amount of information. Regardless of this, information that allows evaluation of important indicator constituents is included in the RI/SCE report, and previously submitted reports. In addition, please note that figures provided for the SCE, and presented in Appendix K of the RI/SCE report, are based on a list of COIs selected by DEQ and EPA, and that StarLink was directed to use this list of constituents to prepare figures in a June 3, 2010 letter from DEQ.
Supplemental Comments	90	Based on tabulated statistics, there have been a number of analytical methods used, by multiple laboratories to produce results for each RP marker chemical. This can present biases in the concentration data that can result in skewed trends and incorrect conclusions about the data. RP should provide data analysis in the RI/SCE report, including concentration trends and distribution plots limited to a subset of data using consistent or compatible analytical methods to reduce potential bias in the interpretation.	This comment is unclear. Environmental investigations have been conducted at the former Rhône-Poulenc facility and vicinity since the early 1980s. Changes in analytical methods and laboratories are inevitable over this period of time. StarLink has invested significant resources over the past decade to ensure development and use of appropriate and accurate sampling and analysis methods. Some of the required methods (e.g., HRMS and GC/MS/MS methods for insecticides) only became commercially available in the past 5 to 7 years, and have been employed by StarLink since 2007. Use of older data in any trend analysis is of doubtful value due to documented interferences and other problems that cast doubt on accuracy of the results. In addition, there is no indication that the concern about variability of results representing an apparent, uncertain, minor trend is justified based on the small increases in concentrations within normal sampling variability.
Supplemental Comments	91	It appears data collection efforts for RI/SCE have not been approached using a consistent set of sampling locations. This is evident in the scatter plot analysis of marker chemicals, which shows variability in frequency of samples as well as vertical distribution of sample locations over time. To reduce the data "noise" that can affect meaningful and correct interpretations, the sampling data set for a particular marker chemical should be filtered down to those wells where groundwater samples have been collected on a routine basis, at consistent locations, time intervals, and preferably over multiple years.	Please see the response to Comment 90. There has been a thoughtful approach to sampling based on understanding potential constituents at the site, understanding the distal portion of COI migration, investigating interference affects, confirming past sampling results, and the length of time COIs have had to migrate. The sampling completed occurred over a long time frame and seasonal variations would not be important when the data spans 10s of years. Multiple rounds of monitoring have been completed for most monitoring wells. The temporal density of the data are more than adequate to demonstrate that there is no widespread and rapid rate of increase in constituent concentrations in groundwater anywhere in the plume. The data are also more than adequate to demonstrate the spatial location of constituents in groundwater that are related to the former Rhône-Poulenc facility. The apparent concern about hypothetical trends after all this time would not have any significant effect on completing the FS, selection of appropriate remedial technologies, and implementation of remedial action.

Comment Category	EPA Comment Number (s)	EPA Comment	StarLink Response
Supplemental Comments	92	Contaminant concentrations of identified marker chemicals remain several orders of magnitude above designated SCE SLVs at the RP site and vicinity as shown in the box-whisker analysis. Given the degree of the concentration ranges, future sample efforts should focus on specific wells that better define marker chemical contaminant source extent, persistence, and distribution via transport pathways.	The wording of this comment is misleading, as it does not recognize the varying distance from the River of the individual monitoring wells, the relationship between distance from the River and concentration, or the action of dilution and other attenuation processes between near-River groundwater and the River itself, including transition zone water in the biologically active zone. The comment also fails to acknowledge the age and maturity of the plume, and the fact that there is no evidence of rapid, widespread, and large concentration increases within the plume, and particularly at the distal end near the River. As stated above, the data are more than adequate to demonstrate the spatial location of constituents in groundwater that are related to the former Rhône-Poulenc facility, and to support moving toward the feasibility study and remedial design.
Supplemental Comments	93	Although complete and consistent datasets are non-existent, there is evidence that RP marker chemical contaminants continue to remain in all four stratigraphic layers at the RP site. There is also evidence that preferential pathways for transport of these chemicals from RP source areas to the river exist, especially along Outfall22C and 22B. These artificial contaminant transport mechanisms in addition to natural downward migration of contaminants as a result of downward groundwater gradients is evident in the persistence and even increasing concentrations of marker chemicals in the deeper stratigraphic layers (Alluvium, Colluvial Gravel, and Basalt) and in wells completed adjacent to the river. This suggests the conclusion presented in the Source Control Evaluation (RI/SCE Report Table J-4) that RP marker chemicals are not seen at the river, nor being transported to the river, is incorrect.	This comment misrepresents the findings of the SCE. Contrary to Comment 93, even a cursory review of Table J-4 shows that a large number of constituents are identified as present in groundwater at the riverbank (see Column D-5). The lines-of-evidence approach applied in the SCE was agreed to with DEQ prior to completion of the SCE, and the assertion that the RI/SCE report states that Rhône-Poulenc indicator COIs are not found at the River is erroneous. There is no evidence of a preferential pathway to the River along Outfall 22C, except for constituents related to GASCO (stormwater and infiltrating groundwater), BNSF (stormwater), and ODOT (highway 30 stormwater drainage), and data do not support a complete pathway related to the former Rhône-Poulenc facility along Outfall 22C. StarLink is in the process of completing an IRAM for Outfall 22B that includes lining of the storm sewer, and placement of concrete collars around the storm sewer pipe as a precaution to prevent hypothetical flow of contaminated groundwater along the pipe.
Supplemental Comments	94	The concentration data showing increased marker chemicals at endpoints of preferential pathways (e.g. Outfall22C and Outfall22B) from RP source areas to the river (see RP-01-51, Figure A40 and RP-24-73, Figure A41). These increases over time including to the most recent sampling in 2010 suggest IRAMs have not been effective as reported in controlling sources and eliminating their potential of for future riverbank exceedance. This alternative opinion on IRAM effectiveness supports the need for RP to evaluate and present IRAM data. 2,3,7,8-TCDD analytical results within the four identified stratigraphic layers (Figures A15-A18) are generally limited to one or two sample events, which seems to be too low to conclude: 1. There is no potential for future Riverbank exceedance as concluded in the SCE Pathway evaluation (summarized in the Draft RI/SCE report Table J-4) and, 2. The chemical is not detected at the riverbank. On the contrary, detections have been recorded at riverbank within nested wells RP-01, RP-07, and RP-14 with completions in the Alluvium, Colluvial Gravel, and Basalt stratigraphic layers (Figures A16-18)	This comment contradicts Comment 90 and Comment 91, which basically state that the data set presented in the RI/SCE report is unusable for trend analysis. It is also unclear what IRAMs are being discussed as there are no IRAMs related to Outfall 22C. The comment also claims evidence of an upward trend in low concentration results where the differences in concentration lie within the standard error range of the analytical methods used. As stated above, the releases that created the sources for former Rhône-Poulenc facility-related constituents in groundwater occurred over 35 years ago, and multiple rounds of monitoring have been completed for most monitoring wells. The temporal density of the data are more than adequate to demonstrate that there is no widespread and rapid rate of increase in constituent concentrations in groundwater anywhere in the plume. The data are also more than adequate to demonstrate the spatial location of constituents in groundwater that are related to former Rhône-Poulenc facility. Please see the responses to Comment 90 and Comment 91 above. This comment does not consider the evidence used to reach the conclusions in the SCE or the site setting. The releases that created the sources for former Rhône-Poulenc facility-related constituents in groundwater occurred over 35 years ago. Multiple rounds of monitoring have been completed for most monitoring wells. The temporal density of the data are more than adequate to demonstrate that TCDD and other dioxins related to historical operations on the former Rhône-Poulenc property are not present in groundwater near the River. Information presented by StarLink to DEQ and EPA in both the RI/SCE and in several earlier documents clearly shows the very few, sporadic, and non-reproducible detections of TCDD in certain near-River wells to be false positives that are the result of interferences and limitations of performance of the analytical methods with very low concentrations and near the detection limit. Data collected since implementation of improved sampling and analytical processes post-2007 demonstrate that TCDD and other dioxins related to former Rhône-Poulenc facility are not being transported in groundwater to the River, consistent with the known physical properties of dioxins. Examination of the locations where dioxins have been detected in near-River wells since 2007 shows that the affected wells are completed in areas where dredged materials were used as fill, or as is the case on Arkema property, where historical waste management operations were conducted by the property owners/operators. The apparent concern about historical limited and sporadic, low level detections of TCDD at concentrations near the detection limit, despite later results that do not support the presence of TCDD in the well, is not useful. This concern over what are discredited artifacts of analytical uncertainty distracts the discussion from progress toward the feasibility study, selection of appropriate remedial technologies, and implementation of remedial action.